

COMPLETED SUICIDE IN THE NAVY AND MARINE CORPS

R. B. CHAFFEE

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SUMMARY

Problem

Military mental health professionals are routinely called upon to determine the degree of danger to self or others manifested by service members. Previous research has focused primarily on describing service personnel who attempt rather than those who complete suicide. Studying nonfatal suicide attempts as the basis for information about completed suicides is methodologically unsound because of differences between the two groups. Studies of service members who complete suicide are needed.

Objective

The purpose of the study was to provide clinically useful information on service personnel most likely to take their own lives.

Approach

Demographic data and data describing the circumstances of death were extracted from computerized medical history files for all active-duty sailors and marines with official records of "death by own hand" during the years 1966 through 1977. Frequency distributions were generated and incidence rates were calculated for the variables of interest.

Results

Incidence rates for Marine Corps middle-range (E-4 through E-6) and junior enlisted personnel (E-1 through E-3) were double and triple the comparable Navy rates, respectively, but were lower than rates for the general U.S. population of white males. The Marine Corps sample was significantly younger and had less service than the Navy sample. Marine Corps personnel committed suicide significantly more often using firearms than Navy personnel.

Conclusions

1. Comparisons between incidence rates for completed suicide for military males and those for the general white male population must be made with caution because of differences in racial characteristics, age distributions, and time periods as well as in methods of observing and reporting on military and civilian populations.
2. The reasons for the interservice differences in incidence rates for completed suicide are unclear but may relate to differences in the types of recruits who enter each service and differential demands of duty among the services.
3. The relationship between the availability of firearms to military service members and their use in completed suicides remains unclear because data on the duty status were unavailable, and the place of occurrence of most firearm deaths was unspecified.

Recommendations

1. Navy mental health professionals should be especially attentive when evaluating junior enlisted and middle-range marines who exhibit self-destructive behavior or ideation.
2. Further research is necessary to determine whether and how Navy personnel who attempt suicide differ from those who complete suicide.
3. Further research is also needed to determine the relationships between completed suicide and prior attempts and between self-destructive behavior and mental illness.

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Completed Suicide in the Navy and Marine Corps

Military mental health professionals are routinely called upon to make judgments of the degree of danger to self or others manifested by service members. The problem of discriminating individuals who are immediate and serious suicide risks from those who are not is especially difficult in an outpatient setting with a predominantly youthful population. In 1975, suicide was the tenth leading cause of death among the total U.S. population but ranked third among 15- to 24-year olds (Petzel & Cline, 1978). The incidence rate for completed suicide in the 15- to 24-year old age group is accelerating compared with the total population rate. For example, the rates per 100,000 per year for white male 15- to 24-year olds were 8.7 in 1962, 15.5 in 1972, and 19.2 in 1976. The corresponding rates for the general population were 17.8, 18.5, and 19.8. Within the 15- to 24-year old group, the suicide rate is accelerating more rapidly among 20- to 24-year olds than among 15- to 19-year olds. Further, the ratio of suicide attempts to completed suicides is approximately 8-10:1 but apparently is much higher among military personnel than among civilians (Elin & Leonard, 1972; Daniel & Cline, 1978). The responsiveness of the military organization to deviant behavior may contribute to this increase: Self-destructive threats or acts routinely require administrative evaluation and mental health referral. Policies regarding psychiatric hospitalization and subsequent return to duty in such cases vary widely, but studies indicate that as many as 15% to 20% of the military psychiatric inpatients were hospitalized primarily for self-destructive behavior (Fisch, 1954; Hauschild, 1968; Offenkrantz, Church, & Elliott, 1957). Most service members evaluated for self-destructive behavior are returned to duty but with recommendations for administrative separation (Newby & Van der Heide, 1968). Such policies and procedures are susceptible to exploitation by individuals who threaten suicide or make nonlethal gestures in efforts to effect some environmental change and may account, at least in part, for the increased ratio of suicide attempts to completed suicides previously cited (Tucker & Gorman, 1967). The hypothesis that manipulation is a factor in many suicide attempts is substantiated by the association of suicide attempts with character and behavior disorder diagnoses in the military literature (Spaulding & Edwards, 1975). How individuals who make suicide attempts differ from those who complete suicide has been described in several military studies (Hauschild, 1968; Schuckit & Gunderson, 1974).

With few exceptions, previous research has focused upon describing service personnel who attempt suicide rather than those who complete suicide (Datel, Del Jones, & Esposito, 1981; Datel & Johnson, 1979; Eggertsen & Goldstein, 1968; Schuckit & Gunderson, 1974). Maris (1981) contends that studying nonfatal suicide attempts as the basis for information about completed suicides is methodologically unsound because of differences between the two groups. Without further description of completed suicides, military mental health professionals will only be able to distinguish those likely to make attempts from everyone else—they will remain unable to positively identify personnel at highest risk for completed suicide on the basis of past behavior of similar individuals. The purpose of the present study was to describe Navy and Marine Corps personnel who completed suicide over a 12-year period as a first step toward providing clinically useful information on service personnel most likely to take their own lives.

METHOD

Data were abstracted from computerized medical history files developed and maintained by the Naval Health Research Center. The files contain demographic and medical history information collected at the time of death. Active-duty sailors and marines with official records of "death by own hand" between 1 January 1966 and 31 December 1977 were identified, and demographic data and data describing the circumstances of death were compiled into individual records. The resulting sample contained 549 Navy personnel and 427 Marine Corps service members. Ninety-five percent confidence intervals were computed for the incidence rates calculated utilizing the Poisson distribution as described by Lilienfeld (1980) for rarely occurring events.

RESULTS

The incidence of completed suicide is shown in Tables 1 and 2 by year and service. The incidence rate does not follow any particular pattern over the years except that the highest rate for the Marine Corps occurred during the Vietnam war (1969). Both service groups were predominantly male and reflect the relatively low number of women in the military during most of the sample years. The total sample included only 6 Navy enlisted women, 1 female officer, and 1 female enlisted marine. Given these small numbers, women were excluded from further analyses. Similarly, both service groups were predominantly white: 91.3% of the Navy and 89.4% of the Marine Corps male completed suicides were Caucasian which roughly parallels the overall racial distributions of the two services during this time period. Blacks accounted for 6.3% of the Navy and 9.0% of the Marine Corps male completed suicides.

Table 1
Incidence of Completed Suicide by Year for Navy
Male Officer and Enlisted Personnel

<u>Year</u>	<u>Number</u>	<u>Average Population</u>	<u>Rate^a</u>	<u>95 Percent Confidence Limits</u>	
				<u>Lower Limit</u>	<u>Upper Limit</u>
1966	44	724,504	6.07	4.42	8.13
1967	68	734,119	9.26	7.27	11.76
1968	60	745,827	8.04	6.19	10.45
1969	64	741,845	8.63	6.64	11.22
1970	56	675,972	8.28	6.37	10.76
1971	29	618,549	4.69	3.14	6.75
1972	17	585,003	2.91	1.70	4.66
1973	34	561,941	6.05	4.22	8.41
1974	45	545,025	8.26	6.02	11.07
1975	35	531,767	6.58	4.59	9.15
1976	40	521,370	7.67	5.48	10.43
1977	50	522,094	9.58	7.11	12.64
Total	542	625,668	7.22	6.60	7.89

^aThe number of suicides per 100,000 population.

Table 2
Incidence of Completed Suicide by Year for USMC
Male Officer and Enlisted Personnel

<u>Year</u>	<u>Number</u>	<u>Average Population</u>	<u>Rate^a</u>	<u>95 Percent Confidence Limits</u>	
				<u>Lower Limit</u>	<u>Upper Limit</u>
1966	41	251,677	16.29	11.63	22.15
1967	48	287,687	16.68	12.38	22.02
1968	34	306,256	11.10	7.74	15.43
1969	71	308,158	23.04	18.09	29.26
1970	38	264,336	14.38	10.27	19.56
1971	21	213,517	9.84	6.09	15.05
1972	33	197,073	16.74	11.67	23.27
1973	35	194,377	18.01	12.55	25.03
1974	28	190,469	14.70	9.78	21.32
1975	26	193,826	13.41	8.76	19.71
1976	24	191,376	12.54	8.04	18.68
1977	25	189,592	13.19	8.53	19.52
Total	424	232,262	15.21		

^aThe number of suicides per 100,000 population.

The data for pay grade shown in Table 3 reveal marked differences between Navy and Marine Corps personnel. The suicide rates for Marine Corps officers are about one-and-a-half times those for Navy officers. Marine Corps warrant officers also completed suicide at a rate one-and-a-half times that of Navy warrant officers. In contrast, the suicide rates for senior enlisted personnel (E-7 to E-9) were quite similar between the two services. The rates for middle-range (E-4 to E-6) and junior enlisted (E-1 to E-3) personnel, however, are again quite discrepant: The rate for Marine Corps middle-range enlisted was approximately double and the rate for junior enlisted nearly triple the comparable rates for Navy personnel.

Table 3
Pay Grade/Rank Distribution for Navy and
Marine Corps Completed Suicides - 1966-1977

<u>Pay Grade</u>	<u>Navy</u>		<u>Marine Corps</u>	
	<u>Number</u>	<u>Rate</u> ^a	<u>Number</u>	<u>Rate</u>
E-1 through E-3	159	5.98	236	16.73
E-4 through E-6	256	7.77	140	15.15
E-7 through E-9	65	11.24	21	13.00
All Enlisted	480	7.35	397	15.90
<u>Rank</u>				
Warrant Officer	4	8.84	2	12.64
O-1 through O-3	32	6.54	18	10.93
O-4 through O-6	21	6.77	7	10.56
All Officers	57	6.75	27	10.94

^aThe number of suicides per 100,000 population

Table 4
Age Distributions for Navy and Marine Corps
Male Completed Suicides

<u>Age</u>	<u>Navy</u>		<u>Marine Corps</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
17	2	0.4	9	2.1
18	15	2.8	38	9.0
19	35	6.5	64	15.1
20	47	8.7	74	17.4
21-22	85	15.7	95	22.4
23-25	100	18.5	59	13.9
26-30	99	18.3	31	7.3
31-35	78	14.4	22	5.2
36-40	45	8.3	20	4.7
41-45	23	4.2	6	1.4
46-50	6	1.1	5	1.2
Over 50	6	1.1	1	0.2
Total	541	100.0	424	99.9
Average Age	27.21		23.26	
Median	25		21	
Mode	20		20	

The Marine Corps sample was significantly younger than the Navy group ($t = 8.74$; $df = \infty$; $p < .001$). As Table 4 shows, 43.7% of the marines versus only 18.4% of the sailors were in the 11- to 20-year old age group ($\chi^2 = 77.45$; $df = 1$; $p < .001$), and 80.0% of the Marine Corps sample versus 52.6% of the Navy group were 25 years old or younger ($\chi^2 = 78.32$; $df = 1$; $p < .001$).

The data for years of service presented in Table 5 are consistent with the pay grade and age data. Mean length of service for Navy completed suicides was significantly longer than for the Marine Corps group ($t = 8.82$; $df = \infty$; $p < .001$). Marines completed suicide significantly more often during their first four years of service than Navy personnel ($\chi^2 = 101.34$; $df = 1$; $p < .001$).

Table 5
Length of Service Distributions for Navy and
Marine Corps Male Completed Suicides

Years of Service	Navy		Marine Corps	
	Number	Percent	Number	Percent
0	19	3.5	48	11.3
1	92	17.0	116	27.4
2	68	12.6	88	20.7
3	45	8.3	52	12.3
4	33	6.1	30	7.1
5-6	42	7.8	17	4.0
7-8	36	6.6	10	2.4
9-10	39	7.2	7	1.6
11-15	71	13.2	28	6.6
16-20	72	13.3	19	4.5
Over 20	24	4.3	9	2.1
Total	541	99.9	424	100.0
Average Length of Service		7.64		4.07
Median		5		2
Mode		1		1

Striking differences in the use of firearms by sailors and marines are evident in the method of injury data as shown in Table 6. Slightly more than 70% of the marines versus 52% of the sailors completed suicide by using firearms. In addition, hanging was more than twice as frequent in the Navy sample than among marines. There were no significant differences between officers and enlisted personnel in their use of firearms versus all other methods in either the Navy or the Marine Corps. Navy officers did not differ significantly from Marine Corps officers in their use of firearms versus all other methods, but Marine Corps enlisted personnel completed suicide significantly more often using firearms than Navy enlisted personnel ($\chi^2 = 28.95$; $df = 1$; $p < .001$). The place of occurrence of the largest proportion of completed suicides for both services was unspecified: 342 (80.7%) of the Marine Corps completed suicides and 348 (64.2%) of the Navy completed suicides were simply designated as occurring "on land/other/unspecified." Otherwise, the most common place of occurrence in both services was "home/barracks/quarters": 72 (17.0%) of the Marine Corps and 138 (25.5%) of the Navy completed suicides occurred in the service member's place of residence. Relatively few of the completed suicides occurred elsewhere: 56 (10.3%) of the Navy and 8 (1.9%) of the Marine Corps completed suicides occurred

aboard ship, and 2 (0.5%) of the marines completed suicide on the drill field or rifle range. Of the firearm suicides, the place of occurrence for most was again unspecified: 185 (34.1%) of the Navy and 240 (56.1%) of the Marine Corps were unspecified. The place of residence was again the second most common location: 87 (16.0%) of the Navy and 52 (12.3%) of the Marine Corps firearm suicides occurred in the home, barracks, or quarters.

Table 6
Method of Injury for Navy and Marine Corps
Male Completed Suicides

Method	Navy		Marine Corps	
	Number	Percent	Number	Percent
Firearm	282	52.0	298	70.3
Hanging	112	20.7	37	8.7
Poisoning/Inhalation	59	10.9	26	6.1
Poisoning/Ingestion	42	7.7	38	9.0
Fall/Jump	18	3.3	4	0.9
Cut/Stab	8	1.5	4	0.9
Drowning	7	1.3	2	0.5
Rail	2	0.4	1	0.2
Electrocution	1	0.2	0	-
Fire	1	0.2	3	0.7
Explosion	1	0.2	5	1.2
Other	9	1.7	6	1.4
Total	542	100.1	424	99.9

DISCUSSION

The rates of completed suicide for the Navy and Marine Corps by year of occurrence and pay grade found in this study are below the rates for the general U.S. population for white males and for white male 15- to 24-year olds. Marine Corps junior enlisted personnel is the only subgroup with a rate that approaches the rate for the general population. However, comparisons between the rates for military males and those for the general white male population must be made with caution because of differences in racial characteristics, age distributions, and time periods as well as in methods of observing and reporting in military and civilian populations. The military samples reported here included males of all races and there are proportionally fewer white males in the Navy and Marine Corps than in the civilian population. Younger age groups are overrepresented in the military and there are relatively few men over 45 years of age on active duty. These demographic factors are relevant because white males and men over 45 have higher rates for completed suicide than males of other racial groups and younger men (Resnik, 1980). Time periods differ for the military and civilian rates presented here because the military samples span 12 years. During that time, rates for completed suicide among the general population have increased. In contrast, no perceptible trend is apparent in the annual rates for the military samples presented here. Finally, the military population is a selected subsample of the general population given the selection criteria and performance standards military personnel must meet to enter and remain on active duty.

The clear-cut differences between Navy and Marine Corps completed suicides found in this study indicate that it is necessary to specify the branch of service when studying suicide in the military population. Further, age, pay grade, length of service, and method of injury all appear to be salient variables in describing service members who completed

suicide. When compared with the Navy, the Marine Corps, with the exception of senior enlisted personnel, shows much higher incidence rates for completed suicide. In addition, the marines as a group were younger, more likely to be in their first four years of service, and more likely to utilize small arms than the Navy sample. Conversely, Navy completed suicides were more evenly distributed across age, pay grade, length of service, and method of injury categories.

The Marine Corps rate for completed suicide found in the present study more closely approximates the rate reported for the Army than does the Navy figure. Datel and Johnson (1979) found the overall rate for Army male personnel for the 2-year period from 1975 through 1976 to be 16.8/100,000. The reasons for these interservice differences in incidence rates for completed suicides are unclear but may relate to differences in the types of recruits who enter each service and differential demands of duty among the services.

The four most common methods of completed suicide were similar for the services. Firearms, hanging, poisoning by inhalation, and poisoning by ingestion account for 91% to 94% of the completed suicides reported by the present study and by the other three cited (Datel, Del Jones, & Esposito, 1981; Datel & Johnson, 1979; Schuckit & Gunderson, 1974). The present study replicates interservice differences in method of injury previously documented.

One might be tempted to conclude from the data on method of injury that the frequent use of firearms is due to their increased availability to military personnel while on duty, e.g., watches, guard duty, etc. This would be premature, however, without analyzing the place of occurrence and the duty status of completed suicides. Data on the place of occurrence indicated that the largest proportion of firearm deaths for which data were available were simply designated as occurring "on land/other/unspecified." Most of the firearm deaths for which more specific data were available occurred in the place of residence, i.e., the home, barracks, or quarters, for both services. Data on the duty status of these completed suicides by firearms unfortunately were not available. Other studies, however, have also indicated that the majority of completed suicides occur in the home, barracks, or quarters but have not specified the method of injury in such cases (Datel, Del Jones, & Esposito, 1981; Datel & Johnson, 1979). The relationship between the availability of firearms to military service members and their use in completed suicides, therefore, remains unclear.

This report is the first in a series that will attempt to describe Navy and Marine Corps service members who engage in self-destructive behavior in terms that are useful to Navy clinicians. Further research will examine the population of Navy personnel who attempt suicide in order to determine whether service members who attempt suicide differ from those who complete suicide, as Maris (1981) suggested. The associations between completed suicide and prior attempts and between self-destructive behavior and mental illness will also be investigated.

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tively, but were lower than rates for the general U.S. population of white males. The Marine Corps sample was significantly younger and had less service than the Navy sample. Marine Corps personnel committed suicide significantly more often using firearms than Navy personnel. Findings were compared with data available for Army service members and previous studies of naval personnel. The risks inherent in inferring that the use of firearms in Navy and Marine Corps completed suicides relates to their availability to military personnel were noted.

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